



AGFD Aquatic Invasive Species Program

Fishing/Quagga Outreach Survey, 2011 Report

Location: Bartlett Lake and Lake Pleasant; Maricopa County, Arizona and Lake Havasu; Mohave County, Arizona.

Date: July 2011 to September 2011

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Objectives:

- I. To determine the fishing/catch habits of anglers at Lake Havasu, Lake Pleasant and Bartlett lake.
- II. To determine the percentage of the boating public's awareness of the AGFD "Don't Move a Mussel – Now it's the Law" (DMAM) outreach campaign, such that where/how did they hear of the DMAM message and what they are doing to proactively stop the spread, by Arizona law and rule.

Materials:

- "Aquatic Invasive Species (AIS) program angling and boating survey" form
- "Don't Move a Mussel- Now it's the Law" brochures.

Methods: Using the AIS program angling and boating survey, employees would briefly talk with watercraft users at the boat ramp. The boat ramps were selected daily at random. The angling portion of the survey was to catalogue if the boaters had been fishing that day, if they used bait or lures while fishing, and what fish species they caught and how many. Next, they were asked if they had heard about the quagga mussel and if they had heard or seen the 'Stop Aquatic Hitchhikers' or the 'Don't Move a Mussel-Now it's the Law' messages. If they had heard or seen either of the messages, they were then asked where they had heard or seen the message. Their options were as follows: radio announcement, billboard, TV, info signs at lake, or other. The last question asked was what they were doing to prevent transporting quagga mussels. Their options were as follows: clean my boat, drain my live-well, wiped down or hand dried my boat, let my boat sit and dry for about a week, let my boat sit and dry for about a month, and/or complete decontamination of my boat, including hot water pressure washing, vinegar in bilge, and let dry for about a week.

Conclusions: A total of 75 surveys were done at Bartlett Lake. The data showed 31% of boaters had been fishing, with more than three (3) times as many anglers using lures as opposed to bait. Anglers identified mainly catching largemouth bass, sunfish, and catfish at

Bartlett, with the total number of each species caught as follows; 5 striped bass (*no striped bass at Bartlett*), 7 yellow/white bass, 70 largemouth bass, 3 smallmouth bass, 17 crappie, 58 bluegill or other sunfish, and 24 catfish. Data showed that 79% had heard of quagga mussels, 30% had heard or seen the 'Stop Aquatic Hitchhikers' message, and 45% had heard or seen the 'Don't Move a Mussel' message. Of the boaters who had heard or seen the 'Don't Move a Mussel' message, our results showed the following means of recognition; 8% radio, 1% billboard, 1% TV, 64% info signs at lake, and 21% other. The results of boaters self inspection and preventing transportation were as follows; 71% cleaned boat, 53% drained live well, 29% wiped down/hand dried, 32% let boat sit a week, 40% let boat sit a month, and 9% did complete decontaminations.

A total of 162 surveys were done at Lake Havasu. The data showed 15% of boaters had been fishing, with a fairly even distribution of anglers using lures and bait. Anglers identified mainly catching largemouth and smallmouth bass at Havasu, with the total number of each species caught as follows; 2 striped bass, 1 yellow/white bass, 20 largemouth bass, 18 smallmouth bass, 3 crappie, 1 rainbow trout or other trout, 4 red ear sunfish, 9 bluegill or other sunfish, and 1 catfish. Data showed that 86% had heard of quagga mussels, 21% had heard or seen the 'Stop Aquatic Hitchhikers' message, and 59% had heard or seen the 'Don't Move a mussel' message. Of the boaters who had heard or seen the 'Don't Move a Mussel' message, our results showed the following means of recognition; 12% radio, 19% billboard, 1% TV, 49% info signs at lake, and 46% other. The results of boaters self inspection and preventing transportation were as follows; 67% cleaned boat, 85% drained live well, 47% wiped down/hand dried, 39% let boat sit a week, 35% let boat sit a month, 4% did complete decontaminations, and less than 1% said the boat doesn't leave Lake Havasu.

A total of 166 surveys were done at Lake Pleasant. The data showed 23% of boaters had been fishing, with more than twice as many anglers using lures as opposed to bait. Anglers identified mainly catching striped bass and largemouth bass at Pleasant, with the total number of each species caught as follows; 89 striped bass, 52 yellow/white bass, 84 largemouth bass, 36 crappie, 6 red ear sunfish, 15 bluegill or other sunfish, and 28 catfish. Data showed that 77% had heard of quagga mussels, 39% had heard or seen the 'Stop Aquatic Hitchhikers' message, and 62% had heard or seen the 'Don't Move a Mussel' message. Of the boaters who had heard or seen the 'Don't Move a Mussel' message, our results showed the following means of recognition; 7% radio, <1% billboard, <1% TV, 66% info signs at lake, and 21% other. The results of boaters self inspection and preventing transportation were as follows; 73% cleaned boat, 52% drained live well, 39% wiped down/hand dried, 27% let boat sit a week, 42% let boat sit a month, and 3% did complete decontaminations.

A total of 403 surveys were completed for all three of these lakes. This total data showed 21% of boaters had been fishing, with twice as many anglers using lures as opposed to bait. In total, most anglers of these three lakes identified catching mainly largemouth bass and

striped bass (??no striped bass at Bartlett??), with the total number of each fish species caught as follows; 96 striped bass, 60 yellow/white bass, 174 largemouth bass, 21 smallmouth bass, 56 crappie, 1 rainbow or other trout, 10 red ear sunfish, 82 bluegill or other sunfish and 53 catfish. When we asked the 403 surveyed if they had heard of the quagga mussel 81% said yes. When asked if they had heard or seen the 'Stop Aquatic Hitchhiker' message, 30% said yes. We then asked if they had heard or seen the 'Don't Move a Mussel' message and 58% said yes. Of the surveyed that said yes to hearing or seeing the 'Don't Move a Mussel' message. We then asked how they had heard or seen this message our results showed the following: 9% radio, 8% billboards, 1% TV, 59% info signs at lake, 31% other (e.g. newspaper, park ranger, game and fish interns, friends & family and fishing clubs). The last question asked of the boat owner concerning self inspection and preventing transportation of aquatic invasive species were as follows: 70% cleaned their boat, 66% drained the live well, 40% wiped down/hand dried their boat, 33% let boat sit a week, 39% let boat sit a month, and 5% did complete decontaminations.

To summarize, angling results indicate that most anglers are using lures to catch largemouth bass, smallmouth bass, and striped bass at Pleasant and Havasu, which are two quagga infested and AIS listed lakes in Arizona. In addition, Pleasant and Havasu are used by boaters for other recreational activities as compared to Bartlett, with almost twice as many boaters fishing at Bartlett as opposed to both Pleasant and Havasu. The results also show that there is still some outreach and education to be done with the boating public regarding the quagga mussel abatement and subsequent State laws and rules. It appears that signs at the lake boat ramps and quagga outreach handed directly to the public explaining "Don't Move a Mussel-Now It's the Law" have had a positive influence on quagga abatement knowledge.

Recommendations:

- 1) Continued fishing outreach and infrastructure (fish cleaning stations, underwater structures, etc.) placement may assist in increasing angling opportunities for the boating public at Pleasant and Havasu.
- 2) Increase personal outreach concerning the protocols watercraft users can use to contain and prevent the spread of quagga are fundamental to information & education efforts.
- 3) Development of periodic roving watercraft inspection protocols for Havasu & Pleasant.
- 4) AGFD proposes to upgrade and continue this "Fishing/Quagga Outreach Survey" effort in 2012 and 2013 for comparison and initiate a 2013 Invasive Mussel Outreach Plan that addresses updated messaging for the lower Colorado River lakes and central Arizona, including new signage and media (e.g., billboards, radio, TV, newspaper).

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Submitted by: Tom McMahon – Invasive Species Program Coordinator

Bartlett Lake Results - Total Surveys = 75

(un-infested water in 2011)

Fishing	Yes	No	Bait	Lure	Both
Did you go fishing today?	31%	69%			
Did you use bait, lure or both?			20%	67%	13%

Type of Fish caught	How many?
striped bass	5
yellow/white bass	7
largemouth bass	70
smallmouth bass	3
crappie	17
rainbow trout or other trout	0
red ear sunfish	0
bluegill or other sunfish	58
Other = channel catfish	24

Knowledge about invasive mussels ?	Yes	No	Missing
Ever heard of QM?	79%	21%	0%
Heard/Seen 'SAH' message?	28%	56%	16%
Heard/Seen 'DMAM' message?	45%	39%	16%

How did you hear about message?	Yes	No
Radio	8%	69%
Billboard	1%	76%
TV	1%	76%
Info signs at Lake	64%	13%
Other	21%	56%
(e.g. interns, park rangers, newspaper article, outreach materials)		

How they prevented transport??	Yes	No
Clean boat	71%	15%
Drain live-well	53%	32%
Wipe down/hand dry	29%	56%
Let sit for week	32%	53%
Let sit for month	40%	45%
Complete decon	9%	76%

Lake Havasu Results – Total surveys = 162

(infested water in 2011)

<u>Fishing</u>	<u>Yes</u>	<u>No</u>	<u>Bait</u>	<u>Lure</u>	<u>Both</u>
Did you go fishing today?	15%	75%			
Did you use bait, lure or both?			45%	41%	14%

<u>Type of Fish caught</u>	<u>How many?</u>
striped bass	2
yellow/white bass	1
largemouth bass	20
smallmouth bass	18
crappie	3
rainbow trout or other trout	1
red ear sunfish	4
bluegill or other sunfish	9
Other = channel catfish	1

<u>Know ledge about invasive mussels?</u>	<u>Yes</u>	<u>No</u>	<u>Missing</u>
Ever heard of QM?	86%	13%	1%
Heard/Seen 'SAH' message?	21%	64%	15%
Heard/Seen 'DMAM' message?	59%	31%	10%

<u>How did you hear about message?</u>	<u>Yes</u>	<u>No</u>
Radio	12%	66%
Billboard	19%	59%
TV	1%	77%
Info signs at Lake	49%	29%
Other	46%	32%
(e.g. outreach materials, family and friends, boat registration, fishing club)		

<u>How they prevented transport?</u>	<u>Yes</u>	<u>No</u>
Clean boat	67%	26%
Drain live-well	85%	7%
Wipe down/hand dry	47%	46%
Let sit for week	39%	54%
Let sit for month	35%	58%
Complete decon	4%	88%
Other	<1% - "doesn't leave Lake Havasu, ever"	

Lake Pleasant Results – total surveys = 166

(infested water in 2011)

<u>Fishing</u>	<u>Yes</u>	<u>No</u>	<u>Bait</u>	<u>Lure</u>	<u>Both</u>
Did you go fishing today?	23%	77%			
Did you use bait, lure or both?			25%	69%	6%

<u>Type of Fish caught</u>	<u>How many?</u>
striped bass	89
yellow/white bass	52
largemouth bass	84
smallmouth bass	0
crappie	36
rainbow trout or other trout	0
red ear sunfish	6
bluegill or other sunfish	15
Other = channel catfish	28

<u>Knowledge about invasive mussels ?</u>	<u>Yes</u>	<u>No</u>	<u>Missing</u>
Ever heard of QM?	77%	22%	0%
Heard/ Seen 'SAH' message?	39%	44%	17%
Heard/Seen 'DMAM' message?	62%	21%	17%

<u>How did you hear about message?</u>	<u>Yes</u>	<u>No</u>
Radio	7%	69%
Billboard	0.6%	76%
TV	0.6%	76%
Info signs at Lake	66%	11%
Other	21%	55%

(e.g. Intern, family and friends, outreach materials, visitor center, AZGF website, Lake Powell inspection station)

<u>How they prevented transport</u>	<u>Yes</u>	<u>No</u>
Clean boat	73%	18%
Drain live-well	52%	39%
Wipe down/hand dry	39%	52%
Let sit for week	27%	64%
Let sit for month	42%	49%
Complete decon	3%	87%
Other	0%	90%

Total Results - all 3 lakes (Havasu, Pleasant and Bartlett) - Total surveys = 403

<u>Fishing</u>	<u>Yes</u>	<u>No</u>	<u>Bait</u>	<u>Lure</u>	<u>Both</u>
Did you go fishing today?	21%	75%			
Did you use bait, lure or both?			30%	60%	10%

<u>Type of Fish caught</u>	<u>How many?</u>
striped bass	96
yellow/white bass	60
largemouth bass	174
smallmouth bass	21
crappie	56
rainbow trout or other trout	1
red ear sunfish	10
bluegill or other sunfish	82
Other = channel catfish	53

<u>Know about Quagga Mussel ?</u>	<u>Yes</u>	<u>No</u>	<u>Missing</u>
Ever heard of QM?	81%	18%	0.5%
Heard/Seen 'SAH' message?	30%	54%	16%
Heard/Seen 'DMAM' message?	58%	28%	14%

<u>How did you hear about message?</u>	<u>Yes</u>	<u>No</u>
Radio	9%	68%
Billboard	8%	69%
TV	1%	76%
Info signs at Lake	59%	19%
Other	31%	46%
(e.g. outreach materials, interns, park rangers, fishing clubs, boat registration, family and friends, AGF website, visitor center, Lake Powell Inspection Center, newspaper article)		

<u>Prevent transporting</u>	<u>Yes</u>	<u>No</u>
Clean boat	70%	20%
Drain live-well	66%	25%
Wipe down/hand dry	40%	50%
Let sit for week	33%	58%
Let sit for month	39%	52%
Complete decon	5%	86%
Other	<0.5% - "doesn't leave Lake Havasu, ever"	